UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,975	12/30/2003	Shipeng Li	MS1-1695US	9696

22801   7590   09/27/2007
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EXAMINER
SENFI, BEHROOZ M

ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
09/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/749,975	LI ET AL.
Office Action Summary	Examiner	Art Unit	
	Behrooz Senfi	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *21 June 2007*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-40* is/are pending in the application.

    4a) Of the above claim(s) *10-16, 21-28, 30, 31, 38 and 39* is/are withdrawn from consideration.

5) ☒ Claim(s) *19, 20 and 29* is/are allowed.

6) ☒ Claim(s) *1, 2, 8, 9, 17, 18, 32, 36 and 40* is/are rejected.

7) ☒ Claim(s) *3-7, 33-35 and 37* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *30 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *12/30/2003*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Election/Restrictions

1.   Applicant's election of claims 1 – 9, 17 – 20, 29, 32 – 37 and 40 in the reply filed

on 06/21/2007 is acknowledged. Because applicant did not distinctly and specifically

point out the supposed errors in the restriction requirement, the election has been

treated as an election without traverse (MPEP § 818.03(a)).

         Non-elected claims 10 – 16, 21 – 28, 30 – 31, 38 and 39 are canceled.

Drawings

2.   Figure 2 should be designated by a legend such as --Prior Art-- because only

that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1, 8, 17, 18, 32 and 36 are rejected under 35 U.S.C. 102(e) as being

anticipated by Schoenblum (US 7,190,723).

Regarding claim 1, Schoenblum '723 discloses, a method for transcoding input

video data encoded at an initial bit rate into output video data encoded at a target bit

rate (please see, fig. 1, transcoder 134 and illustrated in fig. 9, transcoding input video

data 136 encoded at an initial bit rate into output video data encoded at a target bit rate

138, see col. 5, lines 55 – 58, col. 11, lines 28 – 40 and col. 14, lines 1 - 25 of

Schoenblum) the input video data and the output video data comprising one or more of

an intra frame (I-frame), a predictive frame (P-frame), and a bidirectional frame (B-

frame) (i.e., the input video bit-stream 136 and the output video bit-stream 138 of fig. 9,

are MPEG transport bit-stream, which includes intra frame (I-frame), a predictive frame

(P-frame), and a bidirectional frame (B-frame), see col. 5, lines 55 – 58 and col. 7, lines

27 – 60 of Schoenblum), the method implemented by a processor (i.e., fig. 9, processor

904 of Schoenblum), the method comprising:

accumulating transcoding error associated with transcoding the input video

into the output video data to generate accumulated transcoding error (i.e., it is noted

the transcoder 134 as illustrated in figs. 9 and 17 – 20, transcodes the input video 136

into the output video data 138, to generate accumulated drift (i.e., accumulated drift

referred to as accumulated error) associated with transcoding operation of transcoder

134, see col. 14, lines 1 – 25, col. 23, lines 37 – 42 and lines 60 – col. 4, lines 10 and

col. 26, lines 12 – 55);

motion-compensating the accumulated transcoding error to generate motion-

compensated accumulated transcoding error, and error-compensating the input video

data with the motion-compensated accumulated transcoding error to generate error-

compensated video data (i.e., it is noted that processor 1702 including, rate controller

1704 in combination with the motion compensator 1712 and adder/subtracter 17 and

buffer 1710, generates motion compensated accumulated drift GD (i.e., accumulated

drift referred to as accumulated error) in transcoding operation of transcoder 134, see

figs. 1 and 17, col. 22, lines 54 – 55, col. 23, lines 37 – 42 and lines 60 – col. 4, lines 5;

further, it is noted that the processor 1702 process the received input video data (i.e.,

output of VLD 902) with motion compensated accumulated drift to generate/output

error compensated video data, i.e., output of processor 1702 to VLE 906 in fig. 17 of

Schoenblum); and

selectively disabling one or more of the accumulating, motion- compensating,

and error-compensating operations in response to detecting one or more conditions

related to transcoding the input video data (i.e., it is noted that in one preferred

embodiment of the invention of Schoenblum, states B-pictures are processed without

motion compensation. In other words steps 1900 "i.e., step taken in motion

compensation" in fig. 19 would be disabled or skipped over by detecting the B

picture/frame "i.e., which consider as the conditions related to transcoding" in

transcoding operation of the input video data, to enhance computational efficiency by

not doing motion compensation for B-pictures, see col. 29, lines 50 – 59).

Regarding claim 8, Schoenblum '723 discloses, determining whether the input

video data comprises intra-frame video data (i.e., col. 7, lines 27 – 28, col. 11, lines 17

– 18 and col. 14, lines 67 – col. 15, indicating detecting I-picture/frame (e.g.,

determination of type of picture/frame) from the picture header data); and

If the input video data comprises I-frame video data, applying a compensating

switching module to disable the error-compensating operation (i.e., it is noted that, rate

controller 1704 including motion compensator 1712 and memory/buffer 1710, disables

motion compensation operation 1712 "i.e., compensator 1712 compensate the

error/drift receives from buffer 1710" by receiving/detecting an I-picture/frame,

therefore controller 1704 consider as switching module for disabling error

compensation, see col. 23, lines 43 – 44 of Schoenblum).

Regarding claim 17, Schoenblum '723 discloses, further comprising re-quantizing

the error-compensated video data (i.e., figs. 17 – 19, requantizer 1714 for requantizing

the error-compensated video data by the motion compensator 1712 and buffer/memory

1710, see col. 22, lines 57 – col. 23, lines 55 and col. 26, lines 12 – 55 of

Schoenblum), the re-quantizing comprising looking up a target quantization parameter

in a look-up table having a plurality of quantization parameters to achieve the target bit

rate (i.e., figs. 9 and 17, col. 11, lines 31 – 40 and col. 16, lines 8 – 30, look-up table 1,

indicating adjustable parameters "e.g., quantization parameters" to be used by the rate

controller 926 for requantizing based upon a target bit-rate).

Regarding claim 18, Schoenblum '723 discloses, wherein the accumulating

operation comprises accumulating transcoding error in a frequency domain (i.e., 39 –

48, indicating accumulated drift "e.g., accumulated error" is in the DCT frequency

domain).

Regarding claim 32, Schoenblum '723 discloses, a computer readable medium

having stored thereon computer executable instructions for causing a processor to

perform a method (please see; col. 3, lines 57 – 65, indicating that the disclosure of the

present invention can be implemented in hardware, software, firmware, or combination

thereof) comprising:

accumulating transcoding error associated with transcoding input video having

an associated initial bit rate into the output video data having an associated target bit

rate (i.e., it is noted the transcoder 134 as illustrated in figs. 9 and 17 – 20, transcodes

the input video 136 having an associated initial bit rate into the output video data 138

having a desired bit size (i.e. target bit rate), to generate accumulated drift (i.e.,

accumulated drift referred to as accumulated error) associated with transcoding

operation of transcoder 134, see col. 14, lines 1 – 25, col. 23, lines 37 – 42 and lines 60

– col. 4, lines 10 and col. 26, lines 12 – 55);

motion-compensating the accumulated transcoding error to generate motion-

compensated accumulated transcoding error, and error-compensating the input video

data with the motion-compensated accumulated transcoding error to generate error-

compensated video data (i.e., it is noted that rate controller 1704 including the motion

compensator 1712 in combination with adder/subtracter 1706 and buffer 1710 in

processor 1702, generates motion compensated accumulated drift GD (i.e.,

accumulated drift referred to as accumulated error) in transcoding operation of

transcoder 134, see figs. 1 and 17, col. 22, lines 54 – 55, col. 23, lines 37 – 42 and

lines 60 – col. 4, lines 5; further, it is noted that the processor 1702 also process the

received input video data (i.e., output of VLD 902) with motion compensated

accumulated drift to generate/output error compensated video data, i.e., output of

processor 1702 to VLE 906 in fig. 17 of Schoenblum); and

selectively disabling <u>one or more</u> of the accumulating, motion- compensating,

and error-compensating operations in response to detecting one or more conditions

related to transcoding the input video data (i.e., it is noted that in one preferred

embodiment of the invention of Schoenblum, indicates B-pictures are processed

without motion compensation. In other words if the current video picture to be

processed by the transcoder 134 is a B picture/frame "i.e., thus consider as the

conditions related to transcoding the input video", steps 1900 in fig. 19, would be

disabled or skipped over, to enhance computational efficiency by not doing motion

compensation for B-pictures, see col. 29, lines 50 – 59 of Schoenblum).

Regarding claim 36, Schoenblum '723 discloses, the method further comprising,

re-quantizing the error-compensated video data using a re-quantization parameter

corresponding to the target bit rate (i.e., it is noted that, rate controller 1704 including

motion compensator 1712 and memory/buffer 1710 "i.e., compensator 1712

compensate the error/drift receives from buffer 1710" and requantizer 1714 for re-

quantizing the error-compensated video data, as shown in figs. 9 and 17 – 19, by using

requantization parameters based upon a target bit-rate, as discussed in col. 11, lines

31 – 40 and col. 16, lines 8 – 30, col. 22, lines 57 – col. 23, lines 55 and col. 26, lines

12 – 55 of Schoenblum).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

6.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Schoenblum (US 7,190,723) in view of Lin et al. (US 2004/0223735).

       Regarding claim 2, Schoenblum '723 discloses, wherein the selectively disabling

operation comprises:

       determining whether the input video data comprises bidirectional frame

(B-frame) video data; and if the input video data comprises B-frame video data,

applying a B-frame switching module operable to disable the accumulating, motion-

compensating, and error-compensating operations from being applied to the B-frame

video data (i.e., as discussed earlier with respect to claim 1 above, if the current video

picture to be processed by the transcoder 134 is a B picture/frame, steps 1900 in fig.

19, would be disabled or skipped over, to enhance computational efficiency by not

doing motion compensation for B-pictures, see col. 29, lines 50 – 59 of Schoenblum).

Although Schoenblum '723 teaches (i.e. col. 29, lines 50 – 59) that for the B-picture/frame step 1900 including any drift error due to transcoding, error accumulation and motion compensation and error compensation can be skipped, therefore, it's cleared that the skipped "B" frame are not trans-coded (i.e., they are not part of the encoded/transmit frames; i.e., see col. 29, lines 50 – 59 of Schoenblum), Schoenblum '723 is silent in regards to explicit of "inserting B-frame bypass data into the output video data".

However, Lin '735 teaches (i.e. page 5, paragraphs 0058) insertion of dummy B pictures into GOP when pictures are skipped as skipping pictures in order to increase the bit rate of a video signal.

In view of the above, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the video transcoding system of Schoenblum, in accordance with the teaching of Lin by inserting the B pictures into GOP when pictures are skipped as skipping pictures in order to increase the bit rate of a video signal, as suggested by Lin (i.e., page 5, paragraph 0058).

7.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schoenblum (US 7,190,723) in view of Yoshinari (US 2007/0165715).

Regarding claim 9, Although Schoenblum '723 teaches processor 1702 including, rate controller 1704 in combination with motion compensator 1712 and memory/buffer 1710 in video transcoding operation as shown in fig. 17, for disabling motion compensation operation 1712, and therefore, it's cleared that disabling motion

compensation operation 1712 prevent accumulating, motion-compensating and error

compensating operation (i.e., see col. 23, lines 43 – 44 and col. 29, lines 50 – 59 of

Schoenblum), Schoenblum '723 is silent in regards to explicitly mention "open-loop

switching module" as specifies in the claim.

However, Yoshinari '715 teaches switching module 32 in combination with the

controller 13 being used for bypassing the motion compensated prediction process 41

and a compression/motion compensated prediction section in the video transcoding

operation as shown in (i.e., decoding and re-encoding steps 14 and16 of fig. 20, and

switching module 32 and controller 13 for bypassing the motion compensated

prediction process, page 6, left column, lines 5 – 13 of Yoshinari).

In view of the above, it would have been obvious to one having ordinary skill in

the art at the time of the invention was made to modify the processor 1702 as taught by

Schoenblum in accordance with the teaching of Yoshinari by incorporating a switch 32

for by passing the motion compensated prediction process and a compression/motion-

compensated prediction section, in order to prevent picture distortion due to improper

motion estimation and the propagation thereof, as suggested by Yoshinari (i.e., see

page 4, paragraph 0032).

8.   Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Schoenblum (US 7,190,723) in view of Assuncao (US 6,226,328).

Regarding claim 40, Schoenblum '723 teaches, accumulating operation by

transcoding input video having an associated initial bit rate into the output video data

having an associated target bit rate (i.e., it is noted the transcoder 134 as illustrated in figs. 9 and 17 – 20, transcodes the input video 136 having an associated initial bit rate into the output video data 138 having a desired bit size (i.e. target bit rate), as discussed with respect to claim 32 above).

Schoenblum '723 is silent in regards to explicitly show, subtracting discrete cosine transform coefficients associated with the output video data from discrete cosine transform coefficients associated withy input video data, as specifies in the claim.

Assuncao '328 in the same field teaches, (i.e., as illustrated in fig. 2A, transform coefficients (DCT) 62 associated with the output video stream 60 being subtracted 220 from transform coefficients (DCT) 56 associated with input video data 50, col. 6, lines 8 – 33).

In view of the above, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the video transcoding operation of Schoenblum in accordance with the teaching of Assuncao, by transcoding an input elementary stream into an output elementary stream using transform coefficients associated with the input elementary stream, in order to provide transmission flexibility to pre-encoded bit-streams by reducing the characteristic bit-rates according to either channel capacity or user demand, as suggested by Assuncao (i.e., col. 3, lines 13 – 16, col. 6, lines 10 – 16).

Allowable Subject Matter

9.   Claims 19 – 20 and 29 are allowed.

10.   The following is an examiner's statement of reasons for allowance: The prior art

of the record fails to anticipate or fairly suggest, a compensation switching module

operable to disable the error compensating module in response to the motion

compensated accumulated transcoding error being less than a threshold value, along

with other limitations as specifies in the independent claim 19.

Claims 20 and 29 are allowed with respect to dependency to allowable

independent claim 19.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

11.   Claims 3 – 7, 33 – 35 and 37 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

12.   The prior art made of record and not relied upon is consider pertinent to

applicant's disclosure:

| US-6,904,094 | 09-2000 | Liu et al. |
| WO-02/056598 | 07-2002 | Barrau |

Contact

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Behrooz Senfi whose telephone number is 571-272-

7339. The examiner can normally be reached on M-F 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Behrooz Senfi
Examiner.
Art Unit 2621

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